

REMARKS

I. Introduction

Pending claims 1-8 have been examined and are rejected. Specifically, the Examiner maintains her previous grounds of rejection under 35 U.S.C. § 103(a) in alleging that claims 1-8 are unpatentable over the admitted prior art (hereinafter “the APA”) in view of Japanese Patent No. 06-231939 to Toshiro et al. (hereinafter “Toshiro”).

Applicant respectfully requests that the Examiner reconsider and withdraw the current grounds of rejection for at least the reasons set forth herein.

II. Claim Rejections – 35 U.S.C. § 103(a)

Claim 1 recites, *inter alia*, “means for preventing sulfur compounds from permeating said electrically-insulating layer and attendantly reducing the formation of sulfur compounds on a surface of said conducting wire, thereby suppressing the reduction in adhesive of the electrically-insulating layer to said conducting wire, wire breakage, and short circuiting between said conducting wires, said preventing means comprising said electrically-insulating layer being of a material resistant to permeation by sulfur compounds.” The Examiner acknowledges that the APA fails to teach or suggest these features of claim 1 (Office Action: page 2).

The Examiner alleges, however, that Toshiro makes up for the acknowledged deficiencies of the APA. In particular, the Examiner alleges that Toshiro discloses the above-noted features of claim 1, such that “it would have been obvious to one having ordinary skill in

the art at time the invention was made to modify the electromagnetic device of [the] APA with the electrical insulating layer of Toshiro for the purpose of reducing deterioration caused by thermal impact and a PCT test” (Office Action: pages 2-3).

To the contrary, Toshiro is directed to reducing insulation deterioration in a mold coil for a solenoid valve, which is caused by thermal impact and PCT testing (Toshiro: paragraph 0003). According to Toshiro, if a mold material differs from a material of the bobbin, insulation deterioration is caused by the difference between the thermal expansion coefficients of the mold material and the bobbin material, which results in cracks in the mold body (Toshiro: paragraphs 0002 and 0003). Thus, Toshiro teaches using the same material as both the mold material and the bobbin material in order to reduce the deterioration in the mold body (Toshiro: Abstract).

Toshiro does not in any way teach or suggest that sulfur compounds contained in an oil (in which a device is used) permeate an insulating layer coated on a conducting wire of the device, such that the formation of sulfur compounds on a surface of the conducting wire would result, thereby causing a reduction in the adhesive strength of the insulating layer to the conducting wire.¹ Indeed, Toshiro makes no mention of preventing sulfur compounds from permeating an electrically-insulating layer of a conducting wire. Consequently, one of ordinary skill in the art at the time of Applicant’s invention would not have been motivated to combine the APA and Toshiro in the manner proposed by the Examiner. Indeed, given the fundamental

¹ Likewise, the APA does not in any way teach or suggest that a mold material and a bobbin material are to be the same material.

differences between Toshiro and the claimed invention, it appears that the proposed combination of the APA and Toshiro may be the product of impermissible hindsight on the part of the Examiner.

Furthermore, in Applicant's previous response, it was pointed out that Toshiro does not mention any specific environment in which the molded coil will be used, *e.g.*, in an automotive environment, immersed in oil as claimed. Thus, it was noted that there does not appear to be any recognition in Toshiro of the need for special protective measures in such an environment, for example, the prevention of sulfur permeation.

The Examiner responds by alleging that because Toshiro discloses the molded coil and bobbin can be used in auto parts (Toshiro: paragraph 0001), Toshiro somehow suggests the need to prevent sulfur compounds in an oil from permeating an electrically-insulating layer coated on a conducting wire of the electromagnetic device, as recited in claim 1 (Office Action: page 3). This is simply not the case. Toshiro includes a wide-ranging statement of industrial application including, for example, business-machine components and audio components, as well as auto parts (Toshiro: paragraph 0001). A vast majority of auto parts are not immersed in oil so as to be susceptible to permeation by sulfur compounds in the oil. Indeed, nothing in Toshiro teaches or suggests that auto parts (including the mold coil) described therein are immersed in oil so as to be susceptible to permeation by sulfur compounds in the oil.

As presented in Applicant's previous response, Toshiro does not teach or suggest that sulfur compounds contained in the oil permeate to the insulating layer coated on a conducting

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wire, to reach the surface of the conducting wire and act upon the conducting wire to form sulfur compounds on the conducting wire surface, thereby reducing adhesive strength of the insulating layer to the conducting wire. Consequently, Toshiro does not teach or suggest that the bobbin material and the mold material are to have low permeability to sulfur compounds.

The Examiner responds by alleging that Toshiro clearly teaches the use of sulfur compounds as an insulating layer for the coil and bobbin (Office Action: page 4, *citing* Toshiro: paragraph 0005). To the contrary, Toshiro merely provides a list of materials from which the same mold material and bobbin material is to be selected (Toshiro: paragraph 0005). Toshiro does not teach or suggest that the selected material is to have a low permeability to sulfur compounds. *impermeable?*

Further still, in Applicant's previous response, it was noted that there is no motivation to apply the materials of Toshiro to an insulating layer of the APA for the purpose of reducing deterioration of the adhesive strength of the insulating layer to the copper wire caused by sulfur compounds contained in the oil.

The Examiner responds by alleging that the limitations relied on (*i.e.*, the copper wire) are not stated in the claims, which are what define the claimed invention (Office Action: page 4). It is respectfully submitted that the copper wire is an example of the conducting wire recited in claim 1. Thus, it is again submitted that there is no motivation to apply the materials of Toshiro to an insulating layer of the APA for the purpose of reducing deterioration of the adhesive

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strength of the insulating layer to the conducting wire caused by sulfur compounds contained in the oil.

In view of the above, it is respectfully submitted that claim 1 is not rendered obvious by the Examiner's proposed combination of the APA and Toshiro. Claims 3, 5 and 7 recite features similar to those found in claim 1 and, thus, claims 3, 5 and 7 are patentable over the proposed combination of the APA and Toshiro based on a rationale analogous to that set forth above for claim 1. Consequently, claims 2, 4, 6 and 8 are patentable at least by virtue of their dependency.

III. Formal Matter – Drawings

Applicant submits with this Amendment, replacement sheets for Figs. 3, 4, 5, 6, 7, 8, 9, 10 and 11, wherein a "Prior Art" legend is added to each of these figures.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

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Respectfully submitted,



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CUSTOMER NUMBER

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AMENDMENTS TO THE DRAWINGS

Applicant submits herewith replacement sheets for Figs. 3, 4, 5, 6, 7, 8, 9, 10 and 11,
including the addition of a “Prior Art” legend.

Attachment: Five Replacement Sheets.